

B. Preliminary Notes on New Finds of Lower-Palæolithic Implements from Indonesia

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INTRODUCTION

The Patjitanian is to date the most extensively studied lower-palæolithic culture in Indonesia on which Hallam L. Movius, Jr., is the prominent expert (Movius 1948). H. R. van Heekeren has carried out further investigations which revealed new palæolithic sites in the neighbouring area of the Baksoko River (Heekeren 1955). Sporadic finds of this cultural stage were reported in other regions of Java (Gombong, Parigi, Tjidjulung, Tasikmalaja, Djampang), Sumatra (Lho Seumawe, Tambangsawah, Tangjungkarang, Kikim) and Kalimantan (Awangbangkal) (OV. 1937; Movius 1948, 1955; Heekeren 1957). So it is clear, that outside the well-known Patjitanian locality in Java this palæolithic chopper/chopping-tool tradition had its development in more extensive regions in Indonesia (Fig. 1).

Except for the Patjitanian as well as for the objects from Lho Seumawe (Küpper 1930; Lebzelter 1935), Awangbangkal (Heekeren 1951) and Kikim (Amerta 1953), no clear description concerning the implements from the other Indonesian regions exists as yet. Van Heekeren considered the tools from Lho Seumawe as Sumatra type of the mesolithic Hoabinhian (1957: 72-73). Many of the undescribed implements seem to be lost, while only two artifacts from Djampang are now in possession of the Museum of the Institute of Indonesian Culture, Djakarta (*JKBG*, 10, 1948-1951: 37 and 40). A thorough study of these scattered finds has never followed, although they are of great importance on the wide spread of the lower palæolithic tradition in Southern Asia.

The writer is of the opinion, that in aid of systematic research on the development of palæolithic culture in Indonesia every possible find should be documented, notwithstanding (as expressed by Movius 1958: xii-xiii) 'incompleteness from lack of profound geological orientation which would lessen the significance of the material'. Moreover, consecutive findings necessitated recording before material and data from separate discoveries accumulate to a confusing total. As early as 1954 finds were made by explorers of the Archæological Service and the Geological Survey during field work that resulted in the collection of palæolithic implements.

This paper is chiefly intended as a description of the palæolithic material preserved in the Archæological Service in Djakarta and Bali and in the Museum of the Institute of Indonesian Culture which consists of collections made since 1954 to the first semester of 1961. The whole collection includes findings from:

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|--------------------------------------|----------------------|
| A. Kikim in 1954. | D. Gombong in 1959. |
| B. Kalianda (South Sumatra) in 1954. | E. Sembiran in 1961. |
| C. Awangbangkal in 1958. | |

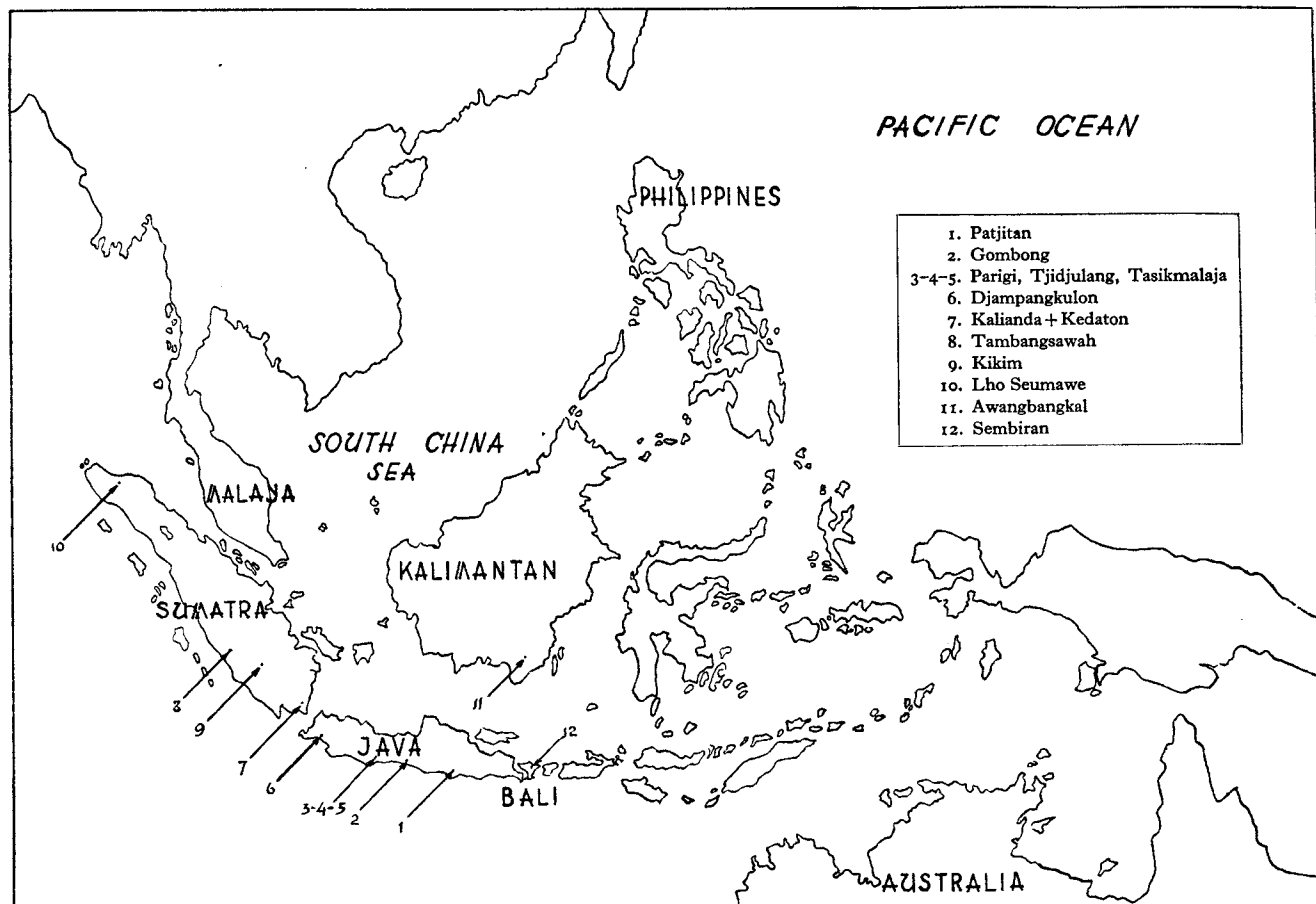


FIG. 1. The Distribution of Lower-Palaeolithic Implements in Indonesia.

The lack of opportunity for performing geological observations or shortage of further reports compels the writer to present here the geological description of the sites in very brief manner. The determination of the raw stone material is given by Dr B. N. Wahju, petrologist of the Geological Survey.

A. IMPLEMENTS FROM KIKIM

A brief report is given in *Amerta* (1953) on this field. A field programme was arranged by the Ministry of Education in 1954 for the re-examination of archaeological objects in South Sumatra. When visiting the neolithic workshop at Bungamas, approximately 20 km. northwest of Lahat, a type of patinated flake tool was found scattered on the pebble-paved railroad south of the village, and led to a more careful searching of the vicinity. Nineteen palæolithic implements of various types were selected in a short time from two main localities, i.e. the river-bed of the Saling River, a tributary of the Kikim River, within reach by way of the village Lubuklajang (3.5 km south of Bungamas) and the river-bed of the Kikim which in turn forms one of the tributaries of the bigger Musi River. The artifact-bearing gravels in the Kikim river-bed seem to originate from the Saling, for the collection was made in that part of the river which is adjacent to the mouth of the Saling (Fig. 2). Several tools were also collected from rural roads near the rivers.

The Bungamas region is located on the northern anticline of the Gumai Mountains whose stratigraphic feature is well established (v. Bemmelen 1949). This chain of mountains is an eroded dome, built up by cretaceous, tertiary and older quaternary sediments which contain various kind of rocks mainly consisting of tuffs, limestone and fossil wood. The Saling has its source in the upper part of the Gumai and joins the Kikim southwest of Bungamas after flowing through the mountains in a northeasterly direction. It is clear that the Saling had exposed various deposits as the implements had been made of their composing materials, but the exact sites from which the tools are derived are still not attested. It was not possible to do more than collect implements during this short inspection, nor was a further look-out for terraces on both river sides made.

The collected implements are made of silicified coral, chalcedony, fossilized wood and silicified limestone; all are patinated with a low degree of rolling. Manufacturing was carried out by means of coarse trimming or flaking on pebbles (of large and small size), or on broken pieces of rock. Nearly all the tools are unifacially worked with the original crust still attached to the upper surface. From the generally accepted typological viewpoint—as is adopted by Movius—the implements can be divided into several categories. It will be better to apply Movius' terminology dealing with the main categories to avoid confusion, while occurrences of subtypes or variations as a result of detailed observations from wider regions can be stated in appropriate terms.

a. Scrapers. There are eight examples made on flakes or detached fragments and these are of disc, oval, tabular or irregular shape. The tools are mostly flattened and flaked on the upper surface along the edge and sometimes show a slightly W-shaped edge. The crust on the upper surface of some pieces was not removed,

while one rounded margin or the whole circumference of the stone was used as a cutting edge (Pl. Ia). A triangular shaped scraper with concave edge would have served as a 'spoke-shave'.

b. Chopping tools. To this category belong two examples made on pebbles of fossil wood of which the cutting edges are very crudely trimmed from both sides. Although

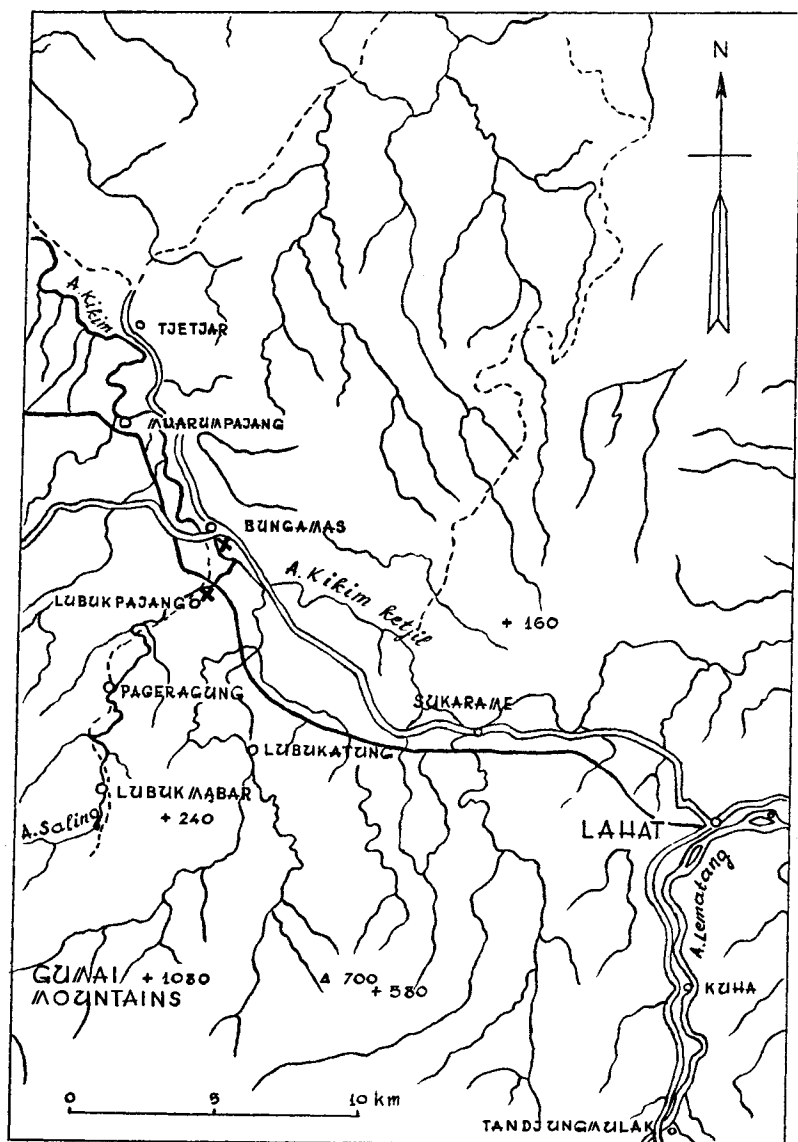


FIG. 2. Map of the Kikim Area (Bungamas)

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|-----------------------------|------------------|
| x : Lower-palaeolithic site | o : Town/Village |
| — : Paved road | —+— : Railroad |
| --- : Trail | ~ : River |

exhibiting twisted edges, the attempt to apply alternate flaking had not been successful. Both cutting edges are battered as a result of frequent use (Pl. I *b*). The third example is of very large size which can be grouped into the gigantolithic type of tools that also occurs in the Patjitanian, but this specimen from Kikim is made on a large pebble of silicified coral (Pl. II *a*). The sinuous cutting edge is obtained by alternate flaking, leaving behind three large plain scars. Sign of usage is proved by beating marks along the edge.

c. Hand adzes. Two specimens made on pebbles of chalcedony are of medium and small size (Pl. II *b-c*). The cortex on the upper surface is partly flaked away and the more or less flattened base has been prepared by coarse flaking and knocking. The steep-ended working edge of the small one is rather semicircular produced by flaking in an upward direction from the base; the working edge of the second example extends around three faces produced by rough knocking and narrow flaking. The third hand adze made of fossil wood has been trimmed on one end and resembles the single steep-ended type from Upper Burma (Pl. III *e*).

d. Hand axe. This single specimen is made of silicified coral pebble, oval shaped and entirely trimmed longitudinally to the pointed end, leaving but a small part of the cortex on one of the surfaces (Pl. III *a*).

e. Flakes. The largest among five flakes is 8.7 cm. long. The cortex of some examples is not entirely removed from the upper surface. Bulbs are apparent and the manufacture demonstrates the usual Clacton technique. Some flakes have been previously crudely prepared before detachment, others show a broad faceted striking-platform which seems to be prepared before detaching the flake. Weak 'Levallois' trends might thus be observed here. Secondary trimming occurs on the lower surface of some pieces. This category includes scrapers and a flake-borer, all showing marked traces of use (Pl. III *b-d*).

f. Cores. Three medium and small-sized cores showing scars of detached pieces were also collected.

B. THE FIND FROM KALIANDA

From field exploration in 1954, Dr Th. Verstappen, former geomorphologist at the Topographical Service, brought back a stone artifact which he found at Kalianda. More information on the finding place was not presented but it can only be said that it is situated in the area of the palæolithic discovery made before this by Erdbrink at Kedaton (Tandjungkarang, South Sumatra) (Movius 1955: 526). This area forms the southern part of the Lampung Fault which is mainly composed of pretertiary (substantially crystalline schist) and tertiary (volcanic rocks and intercalations of marine deposits) formations overlain by plio-pleistocene acid pumice tuffs (v. Bemmelen 1949). The implement is of the proto-hand-axe type made of a flake of yellow brown coloured flint and is rather small (11 by 6 by 3.5 cm). It is slightly patinated and comparatively fresh. The entire upper surface is longitudinally chipped to the point with apparent retouches of usage along the cutting edge (Pl. IV *b*).

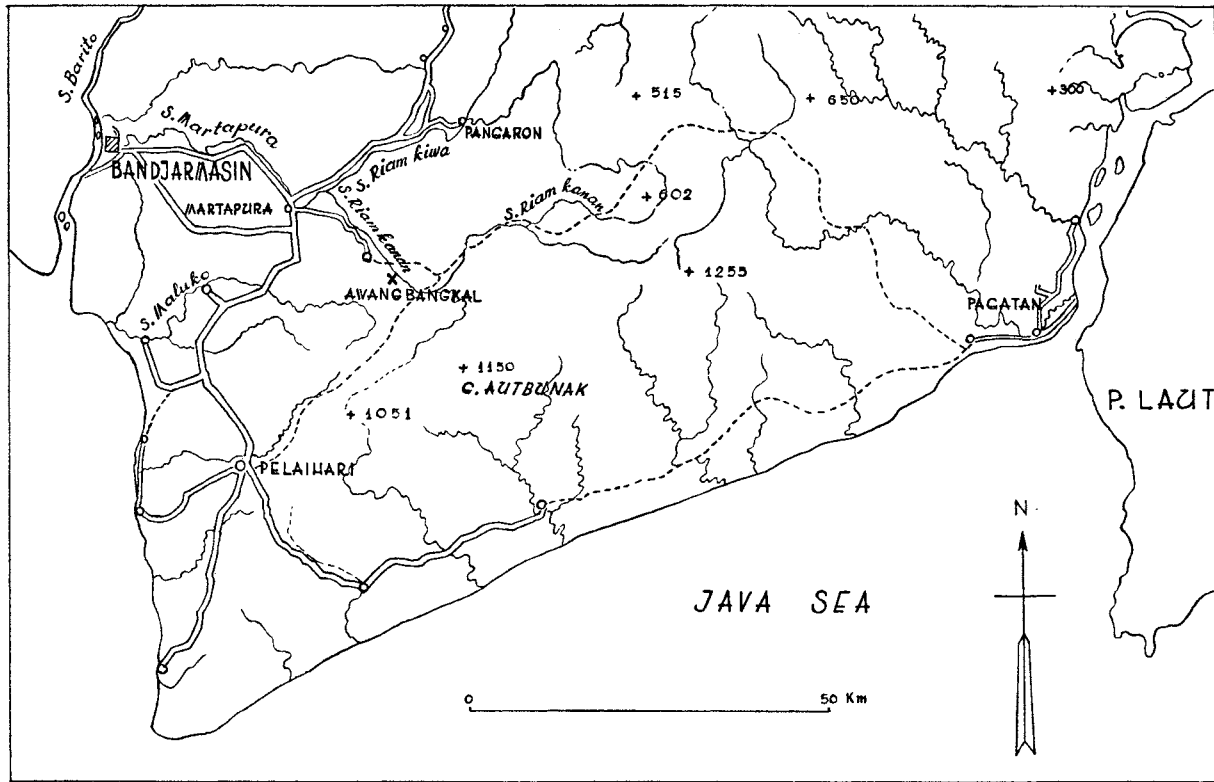


FIG. 3. Map of the Riam-kanan Area.

× : Lower-palaeolithic site

— : Paved road

- - - : Trail

~ : River

○ : Town/Village

C. THE FIND FROM AWANGBANGKAL

A single find was made at Awangbangkal in 1958 by Mr Toer Soetardjo of the Geological Survey. The only report we have says that the artifact was found in the gravels of the Riam Kanan River, situated southeast of Martapura. A pin-pointing of the correct spot is still wanted. As already said, on the southern bank of this same river Küpper found six monofacially chipped implements (Heekeren 1951). Van Heekeren first was of the opinion that these tools resemble the monofaces of Hoabinhian assemblage, but revised his viewpoint later and classified them into the lower-palæolithic chopper/chopping tool complex (Heekeren 1957: 25).

The Riam Kanan is located west of the Meratus Range of which geological sequences have been very profoundly explored (v. Bemmelen 1949). The river-basin stretching southeast of Awangbangkal (Fig. 3) crosses formations of pretertiary (mainly crystalline schist which are nearly all quartzites and hornblende schists, further basaltic rocks) and tertiary (sedimentary rocks and volcanic facies) origin. The find from 1958 is a chopper made of a discoidal pebble of reddish brown coloured quartz var. jasper. Rough trimming has been carried out on a single end of the upper surface for obtaining the double-sided blunt-pointed cutting edge. Striking scars are noticeable along the entire margin of the edge as result of utilization. In comparison with the finds of Küpper this last find is of greater size (13 by 11.7 × 4.1 cm), it also displays a thicker patina and a high degree of rolling (Pl. IV c).

D. IMPLEMENTS FROM GOMBONG

An investigation was made in 1959 to confirm the report on a palæolithic discovery made by Houbolt in 1937 at Kedungbulus, situated at about 4 km. northeast of Gombong. Houbolt had stated, that his collection comprised tools of very similar types to the Patjitian (Houbolt 1940), but nothing more has been recorded concerning this collection which seemed to have been lost during the war. Houbolt has presented pictures of only two implements without any description. According to their pointed shapes—one displaying a flat base seen from the side—they are probably proto-hand-axes. The examination was conducted by Mr Basuki of the Archæological Service, who has only succeeded in collecting a small amount of palæolithic tools. All the tools were picked up from the gravels of the Kenteng River at several places between the villages Kenteng and Kedungbulus (Fig. 4). Unfortunately the investigation was suspended because of the rains.

The Kenteng basin is situated in the southern part of the South Seraju Range which has a geoanticline structure as a remnant of a former elongated dome extending in a northeast direction. The composition of this relic is built up by pretertiary and tertiary layers containing volcanic, sedimentary and metamorphic rocks which have been exploited for raw material to manufacture stone implements (v. Bemmelen 1949). The artifacts are made of various kinds of stones such as quartz, chert, flint, chalcedony, hornstone and claystone. The series is a poor collection consisting mainly of cores. A summary of these waterworn implements may be given as follows:

a. One *chopper* with concave butt-end was found. The upper surface is flaked and chipped along the semicircular margin and alternate flaking has been partly executed. Intensive use resulted in retouches along the entire cutting edge (Pl. V a).

b. The flakes (Pl. V b and e) include one large specimen (9.9 by 4 by 4.2 cm.) with smooth surfaces which scarcely are secondarily worked. The second is a

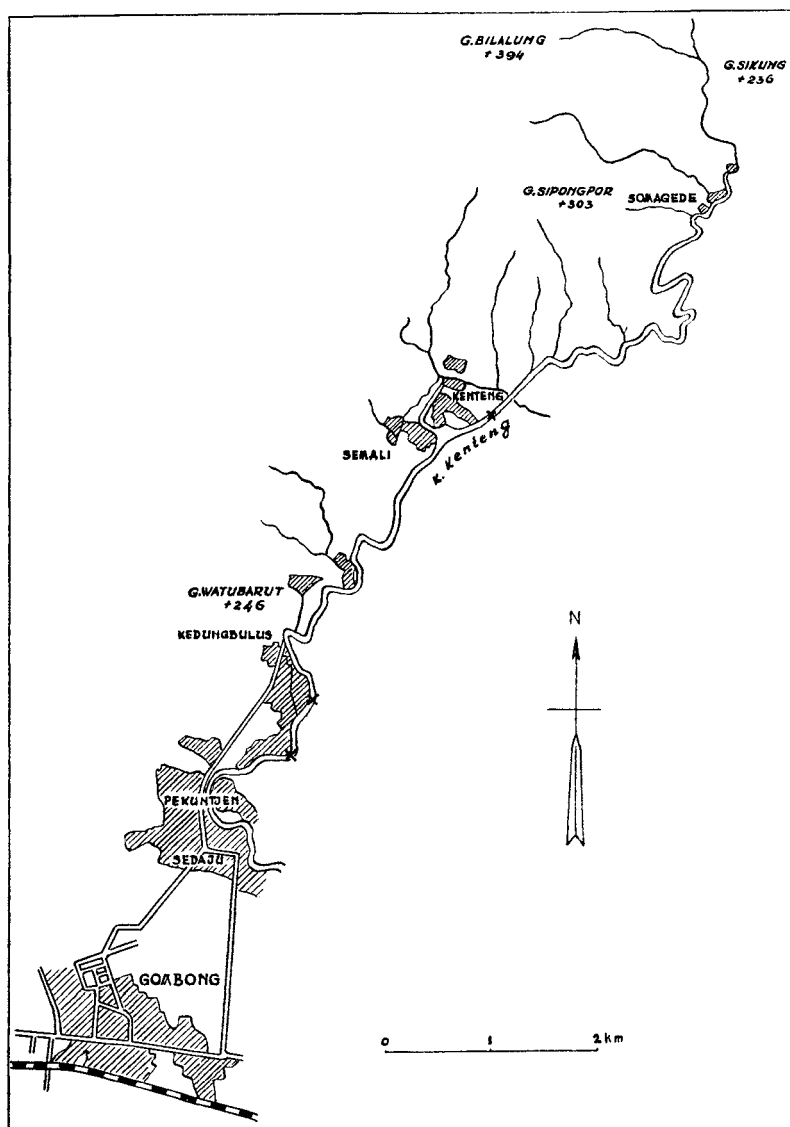


FIG. 4. Map of the Kenteng Area

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|-----------------------------|------------------|
| x : Lower-palaeolithic site | —+— : Railroad |
| — : Paved road | ▨ : Town/Village |
| ~ : River | |

triangular flake-point. Bulbs, plain striking platforms and retouches of usage are very apparent on both specimens. Also chips were prepared for tools. One specimen has a microlithic appearance showing secondary retouching and distinct signs of use on the edge, another has the shape of a pointed blade (Pl. V *d* and *g*).

c. One rounded massive hammerstone (Pl. V *c*) made of quartz exhibiting battering traces was also collected.

d. About twelve cores of medium size; the cores of these blade tools form a part of the collection. Several specimens have been used as instruments.

E. IMPLEMENTS FROM SEMBIRAN

During an investigation made in May 1961 on megalithic structures at Sembiran (a well-known village in connection with the so-called Bali Agas, one of the original people in Bali), the writer collected several stone tools from the pebbles on the footpath linking up Patjung with Sembiran (Fig. 5); and in a second visit he succeeded in collecting about 40 artifacts. The site is situated upon one of the mountain ridges sloping down northward to the narrow coastal strip of North Central Bali. This ridge—and presumably all other ridges of the adjacent area—shows the plain structure of an extrusive sheet, where the basaltic mass is covered by a mixture of boulders, lapilli and brown reddish earth. The mountain region of northern Bali forms an extension of Java's Solo Zone, which is characterized by its Quaternary volcanic complexes developed since the Lower Pleistocene up to recent times (v. Bemmelen 1949). Situated in the continuation of this volcanic zone is the Gunung Batur complex, which is really a big caldera formed by older and younger eruptions that brought into existence two more or less concentric calders rims. The implementiferous 'Sembiran ridge', situated northwest of the Batur complex, was most possibly one of the lava flows caused by an older eruption which had formed the first or older Batur Caldera. In what chronological order this occurred has not yet been settled; but according to the typology of the collected implements an older Pleistocene dating might be admissible.

The implements were collected on several sites which are heavily drained by rain-water or are dug up for cultivation purposes. Their raw material comes from volcanic boulders—any of which show distinct split scars—as well as efflate pebbles. These works are determined as basalt and vitrophyre. All the tools are surface finds exposed among raw material and waste products. Nearly all have a reddish-brown patina covering the black-coloured inner rock and are often found weathered by rain and the hot climate. The technique of production has been the common secondary rough flaking and trimming on the upper surface, mostly executed on medium and small-sized pebbles, sometimes also on shattered parts of boulders. In most instances the cortex still adheres on large or small parts of the upper surface, while it was removed by hammering to smooth the base or lateral sides of the implements. That the tools have been used is generally evidenced by the retouches along the edge. The provisional collection may be divided into the following categories:

a. The chopper category includes among others one example which fits in with the 'flat-iron' subtype (see Heekeren 1955: 6). It is made on a massive core, crudely worked around the upper surface by longitudinal flaking and vertical flaking laterally, the base being slightly convex caused by splitting on an anvil. The cortex is left at several parts of the plane surfaces. This tool has a trapezoid cross-section and seems to be ready made without exhibiting any sign of use (Fig. 6*a*). Two other specimens are *side-scrapers*. One has a crude shape made from a tabloid chunk and underwent limited flaking on the circumference of the upper surface; chipping on the adjoining margin (i.e. the lower surface) resulted in a twisted edge (Pl. IV *a*). The second is a crude detached piece of boulder worked on the upper surface and shows in some degree alternate trimming on the edge (Fig. 7*a*). Two other small tools may be classified as side-scrapers too, made from pebbles of which the edges have a 'scalloped' look. The crust on the butt-end of these tools, as on the 'iron-heater' chopper and the side-scraper has been removed to facilitate the grip.

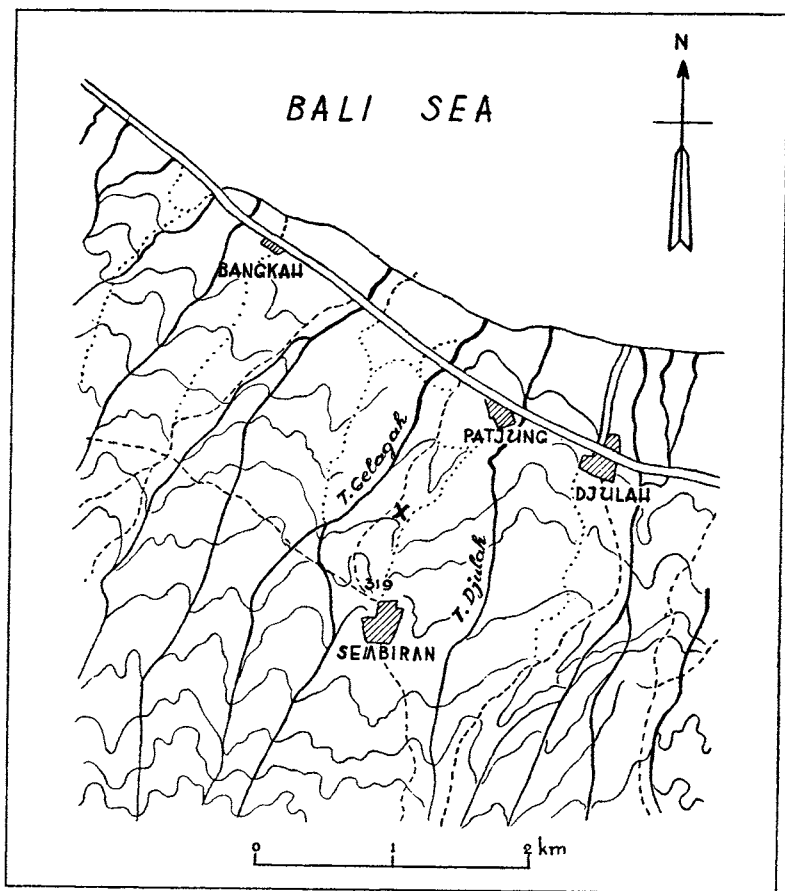


FIG. 5. Map of the Sembiran Area

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|------|---------------------------|------|----------------|
| × | : Lower-palaeolithic site | ---- | : Trail |
| == | : Paved road | ▨ | : Town/Village |
| ~~~~ | : River | | |

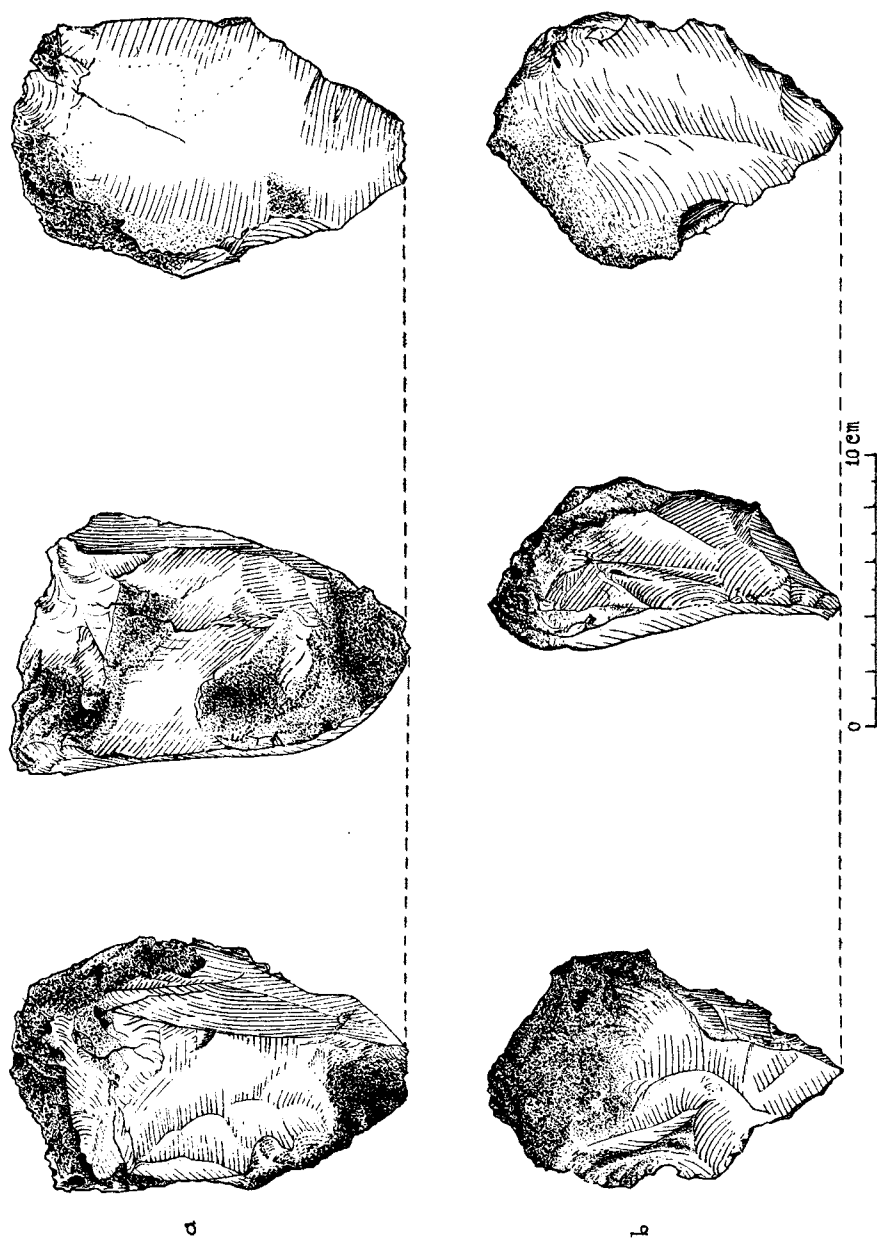


FIG. 6. Implements from Sembiran: *a*, 'flat-iron' chopper, *b*, proto-handaxe.

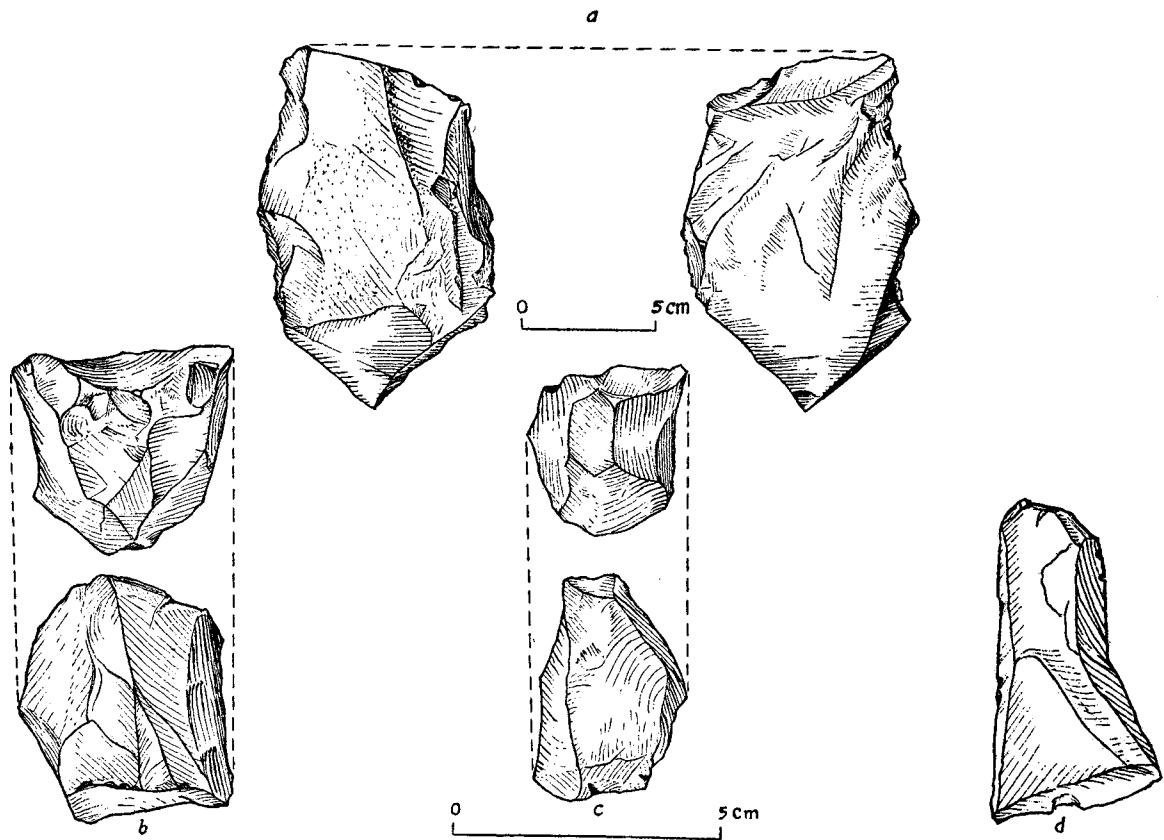


FIG. 7. Implements from Sembiran: *a*. scraper; *b*, *c*. small highback scrapers; *d*. end scraper.

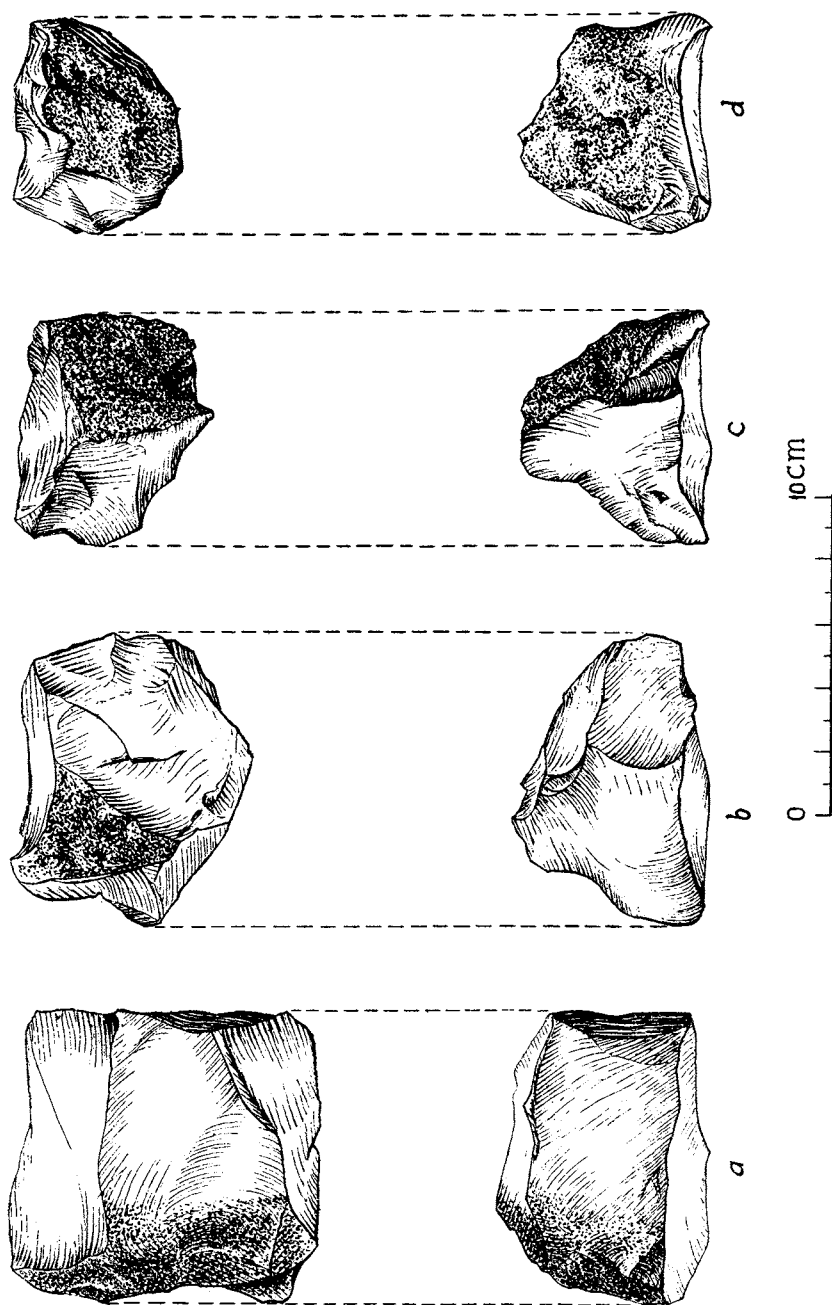


FIG. 8. Sembiran: *a, b*, hand adzes; *c, d*, highback scrapers

b. The *hand adze* type comprises seven tabular-shaped specimens of medium and small size, the steep edges being on the opposite of the rather perpendicularly trimmed butt-end (Fig. 8 *a, b*). In some cases the cortex is flaked away to obtain a plain upperside. Two small sized varieties display a pointed edge (Fig. 9).

c. A group of tools may be classified as *high-back core-tools* or *high-back scrapers* the shape of which is typical of this local assemblage and is not found in other areas of Indonesia. The core is perpendicularly flaked or trimmed on the straightened butt-end and on parts of the side-planes, so forming a semicircular or oval edge of which the sharpness is acquired by preparing a slightly concave base (Fig. 7 *b, c* and 8 *c, d*). There are found nine tools, the largest measures 7.3 by 5.2 by 5.8 cm., the smallest 2.5 by 2.3 by 3.8 cm.

d. Of the *proto hand-axe* type is found one specimen made from a pebble. The smooth lower surface is formed by two parallel split scars. The upper surface has been irregularly chipped in an effort to produce a pointed shape, but without removing the cortex on the butt-end (Fig. 6 *b*). Signs of repeated use are demonstrated along the whole cutting edge.

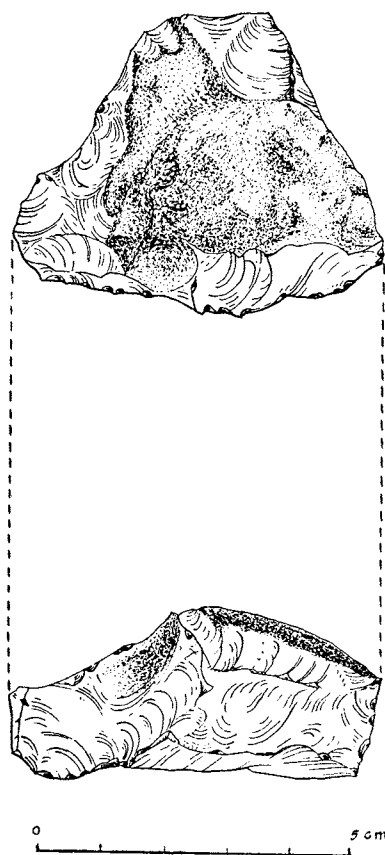


FIG. 9. Hand adze with pointed edge from Sembiran.

e. A thick chip has been prepared for a steep single-ended *blade tool* and has been used as end-scraper (Fig. 7 d).

f. Two irregularly shaped tools have flat bases and perpendicular cutting edges.

g. The collection contains one *hammerstone* with a coarsely trimmed grip but the circular percussion-surface has been well prepared.

h. Many *nuclei* and rejected products are scattered at the places of collecting, but only a few were selected. The small examples showing flake scars all around could have been used as scrapers or chopping instruments. The occurrence of raw material clustered with various kinds of prepared tools, gives convincing evidence that this site had been occupied by the tool producers.

SOME CONCLUDING REMARKS

In spite of the absence of geological dating the whole collection is worthy of observation. The tendency for employing the same technique in manufacturing tools, which is substantially monofacial preparation, is conspicuous. On an average the similarities of types are indicative, even in their identical shapes when we compare the implements described with the Patjitianian. But no less remarkable is the existence of varieties or slight alterations of forms principally due to the nature of raw material. Any of the Kikim implements show affinities with the fossil wood series of the Early Anyathian, but an additional element of the Patjitianian, as well as of the Tampanian, i.e. the bifacial or hand-axe type, is here represented too. Thus this Kikim assemblage could be considered to be the link in the spread of the monofacial tool-preparing tradition between Burma and Java. Dealing with the Gombong implements one gets the impression that blades and microlithic tools were also preferred—this may indicate a later stage of development. The Sembiran assemblage, although exhibiting related features with the Patjitianian had produced its own typical forms, often of small size, and was likely a later developed local industry. But all this is merely tentative; conclusive proofs cannot as yet be presented. Unfortunately fossils in association with the finds that could give support to geological dating of the implements are totally lacking. The writer is aware how incomplete is this study; to give a chronological order of these local assemblages in Indonesia, a comprehensive geological investigation at each site is, to say the least, necessary.

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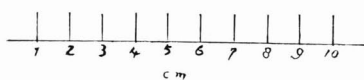
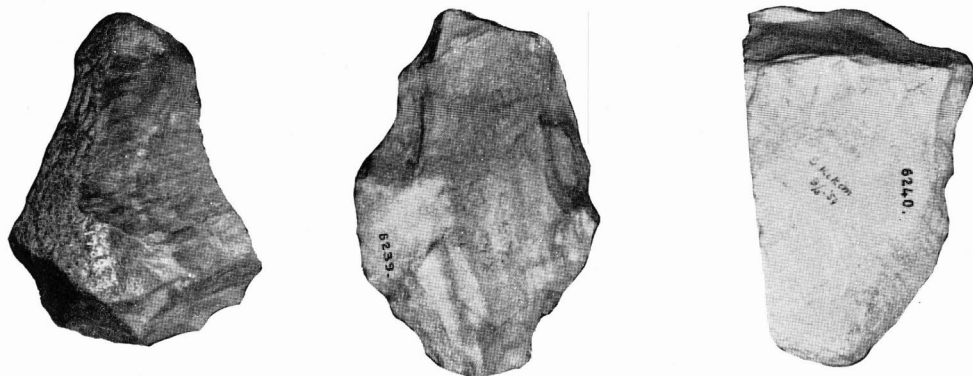
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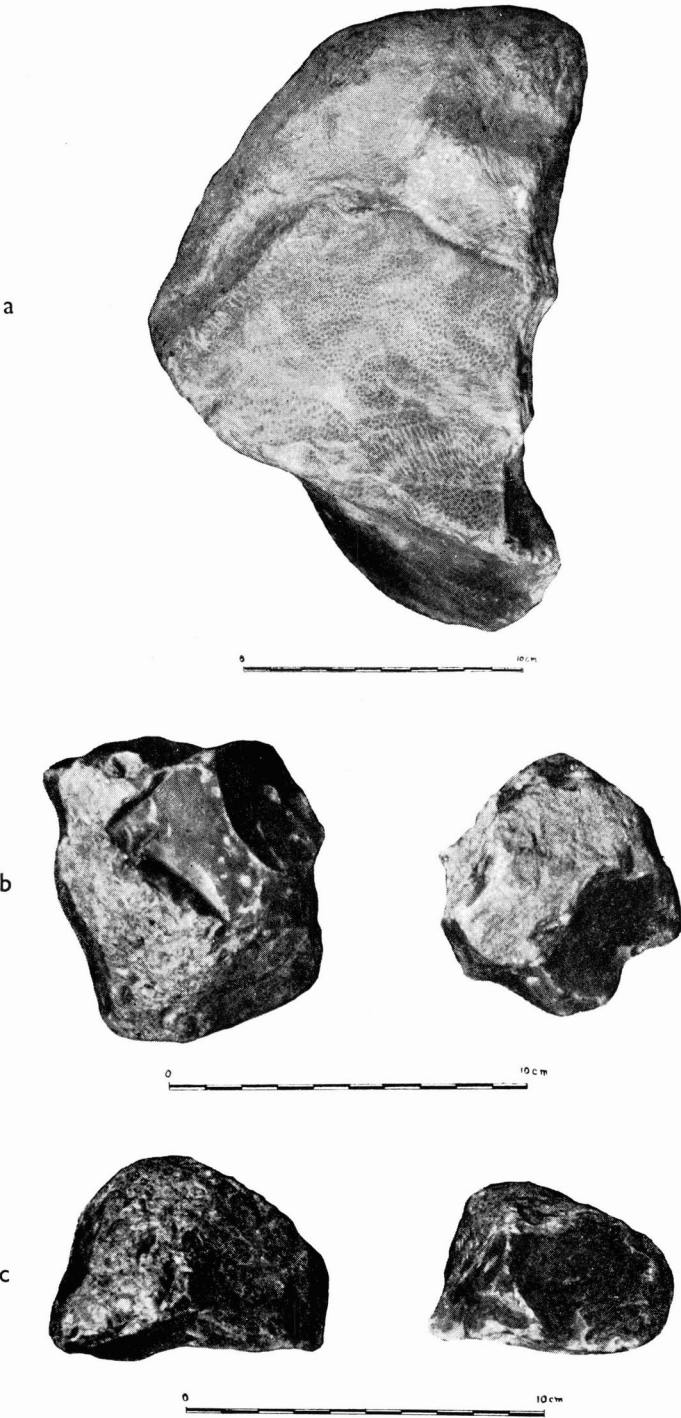
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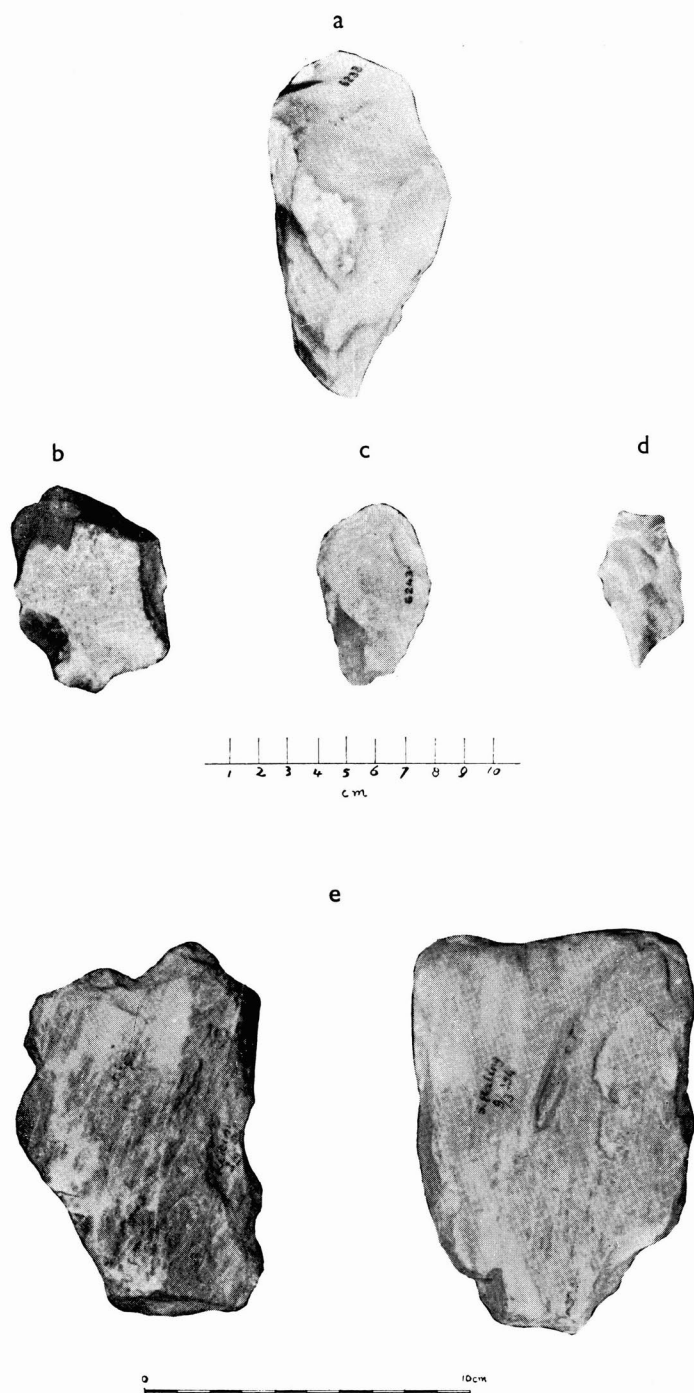
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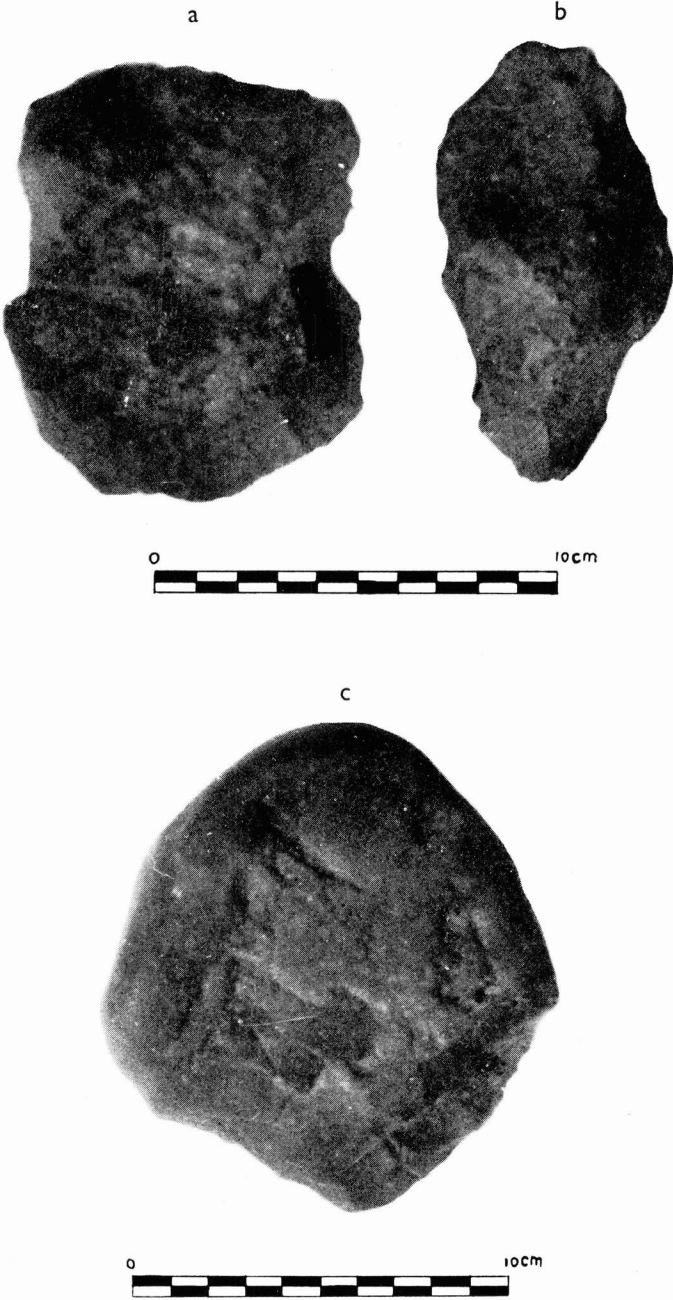
Implements from Kikim: *a.* scrapers, *b.* chopping tools.



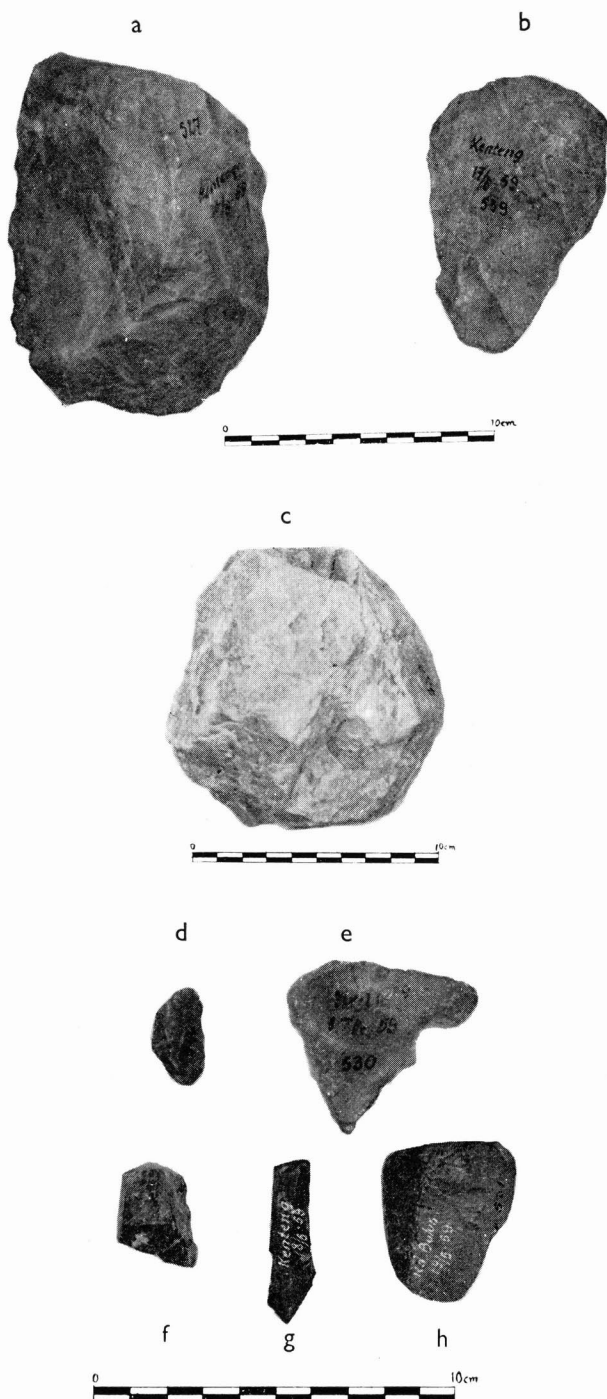
Implements from Kikim: *a.* gigantomolith, *b.* and *c.* hand adzes.



Implements from Kikim: *a.* handaxe, *b.* flakes, *c.* hand adze.



a. Scraper from Sembiran, *b.* proto hand-axe from Kalianda,
c. chopper from Awangbangkal.



Implements from Gombong: *a.* chopper, *b.* and *e.* flakes, *c.* hammerstone, *d.* microlithic tool, *g.* pointed blade.